Numerische Mathematik

Vol. 56 1989/90

Editor-in-Chief **R.S. Varga**

Editors

I. Babuška, College Park
F.L. Bauer, München
R. Bulirsch, München
P.G. Ciarlet, Paris
G.H. Golub, Stanford
A.S. Householder, Malibu
H.B. Keller, Pasadena
B.N. Parlett, Berkeley
G.W. Stewart, College Park
J. Stoer, Würzburg
J. Todd, Pasadena
R.S. Varga, Kent
C. Zenger, München
(Managing Editor)

Associate Editors

R.E. Bank, La Jolla
R.P. Brent, Canberra
F. Brezzi, Pavia
L. Collatz, Hamburg
G.G. Dahlquist, Stockholm
M. Fiedler, Praha
W. Gautschi, Lafayette
R. Glowinski, Rocquencourt
W.B. Gragg, Lexington
M.H. Gutknecht, Zürich
W. Hackbusch, Kiel
G. Hämmerlin, München
E. Hairer, Genève
H.-O. Kreiss, Los Angeles
N.J. Lehmann, Dresden
G.I. Marchuk, Moskau
J. Meinguet, Louvain-la-Neuve
A.R. Mitchell, Dundee
J. Moré, Argonne
M. Mori, Tsukuba
K.W. Morton, Oxford
W. Niethammer, Karlsruhe
D.J. Rose, Durham
J. Schmidt, Dresden
S. Sobolev, Moskau
H.J. Stetter, Wien
G. Strang, Cambridge
L.N. Trefethen, Cambridge
P. Van Dooren, Brussels
O. Widlund, New York

Assistant Editor **W. Sautter,** München

Springer International

Numerische Mathematik

Copyright

Submission of a manuscript implies: that the work described has not been published before (except in the form of an abstract or as part of a published lecture, review, or thesis); that it is not under consideration for publication elsewhere; that its publication has been approved by all coauthors, is any, as well as by the responsible authorities at the institute where the work has been carried out; that, if and when the manuscript is accepted for publication, the authors agree to automatic transfer of the copyright to the publisher; and that the manuscript will not be published elsewhere in any language without the consent of the copyright holders.

All articles published in this journal are protected by copyright, which covers the exclusive rights to reproduce and distribute the article (e.g., as offprints), as well as all translation rights. No material published in this journal may be reproduced photographically or stored on microfilm, in electronic data bases, video disks, etc., without first obtaining written permission from the publisher.

The use of general descriptive names, trade names, trademarks, etc., in this publication, even if not specifically identified, does not imply that these names are not protected by the relevant laws and regulations.

While the advice and information in this journal is believed to be true and accurate at the date of its going to press, neither the authors, the editors, nor the publisher can accept any legal responsibility for any errors or omissions that may be made. The publisher makes no warranty, express or implied, with respect to the material contained herein.

Special regulations for photocopies in the USA

Photocopies may be made for personal or in-house use beyond the limitations stipulated under Section 107 or 108 of U.S. Copyright Law, provided a fee is paid. This fee is US $ 0.20 per page, or a minimum of US $1.00 if an article contains fewer than five pages. All fees should be paid to the Copyright Clearance Center, Inc., 21 Congress Street, Salem, MA 01970, USA, stating the ISSN 0029-599X, the volume, and the first and last page numbers of each article copied. The copyright owner's consent does not include copying for general distribution, promotion, new works, or resale. In these cases, specific written permission must first be obtained from the publisher.

Printers: Universitätsdruckerei H. Stürtz AG, Würzburg

© Springer-Verlag Berlin Heidelberg 1990
Printed in Germany

Index Volume 56 1989/90

No. 1 pp. 1–108 issued on 7.05.1989
No. 2–3 pp. 109–308 issued on 18.10.1989
No. 4 pp. 309–408 issued on 23.10.1989
No. 5 pp. 409–528 issued on 14.11.1989
No. 6 pp. 529–634 issued on 6.12.1989
No. 7 pp. 635–734 issued on 23.01.1990
No. 8 pp. 735–838 issued on 13.02.1990

Arcangéli, R., → Lopez de Silanes, M.C.
Auzinger, W., Frank, R.: Asymptotic Error Expansions for Stiff Equations: an Analysis for the Implicit Midpoint and Trapezoidal Rules in the Strongly Stiff Case 469
Axelsson, O., Vassilevski, P.S.: Algebraic Multilevel Preconditioning Methods. I 157

Banerjee, U., Osborn, J.E.: Estimation of the Effect of Numerical Integration in Finite Element Eigenvalue Approximation 735
Bank, R.E., Welfert, B.D., Yserentant, H.: A Class of Iterative Methods for Solving Saddle Point Problems 645
Berger, H.: A Convergent Finite Element Formulation for Transonic Flow 425
Bojanov, B., Huang, D.: Comparison of Optimal Quadrature Formulas 817
Bowers, K.L., → McArthur, K.M., et al.
Büttgenbach, B., Nessel, R.J., Wickeren van, E.: Sharp Estimates in Terms of Moduli of Smoothness for Compound Cubature Rules 359

Carbonera, C., → Negron-Marrero, P.V.
Chao, H.Z., → Greenbaum, A., et al.

Deif, A.: A Relative Backward Perturbation Theorem for the Eigenvalue Problem 625

Eichenauer-Herrmann, J., Grothe, H.: A Remark on Long-Range Correlations in Multiplicative Congruential Pseudo Random Number Generators 609
Eiermann, M.: On Semiiterative Methods Generated by Faber Polynomials 139
Elsner, L.: Comparisons of Weak Regular Splittings and Multisplitting Methods 283

Fernando, K.V.: Linear Convergence of the Row Cyclic Jacobi and Kogbetliantz Methods 73
Frank, R., → Auzinger, W.
Frommer, A.: Parallel Nonlinear Multisplitting Methods 269
Frommer, A., Mayer, G.: Parallel Interval Multisplittings 255

Gal, S.G.: A Construction of Monotonically Convergent Sequences from Successive Approximations in Certain Banach Spaces 67
Gao, F.: A Probabilistic Theory for Error Estimation in Automatic Integration 309
Girard, D.A.: A Fast 'Monte-Carlo Cross-Validation' Procedure for Large Least Squares Problems with Noisy Data 1
Greenbaum, A., Li, C., Chao, H.Z.: Comparison of Linear System Solvers Applied to Diffusion-Type Finite Element Equations 529
Grothe, H., → Eichenauer-Herrmann, J.
Grozev, G.R.: Comparison Theorems for L-Monosplines of Minimal Norm 331
Gutknecht, M.H.: Continued Fractions Associated With the Newton-Padé Table 547
Gutknecht, M.H.: Stationary and Almost Stationary Iterative $(k, 1)$-Step Methods for Linear and Nonlinear Systems of Equations 179

Hackbusch, W.: The Frequency Decomposition Multi-Grid Method. Part I: Application to Anisotropic Equations 229
Hadjidimos, A., → Pierce, D.J., et al.
Hari, V., → Veselić, K.
Heinrichs, W.: Spectral Methods with Sparse Matrices 25
Herceg, D.: Uniform Fourth Order Difference Scheme for a Singular Perturbation Problem 675
Ho, D.: Tchebychev Acceleration Technique for Large Scale Nonsymmetric Matrices 721
Huang, D., → Bojanov, B.

Hundsdorfer, W.H., Schneid, J.: An Algebraic Characterization of B-convergent Runge-Kutta Methods 695

Kauthen, J.-P.: Continuous Time Collocation Methods for Volterra-Fredholm Integral Equations 409
Kloeden, P.E., Lorenz, J.: A Note on Multistep Methods and Attracting Sets of Dynamical Systems 667
Knoth, O.: A Globalization Scheme for the Generalized Gauss-Newton Method 591

Le Tallec, P., Ravachol, M.: Finite Element Approximation of Viscoelastic Progressively Incompressible Flows 43
Lepora, P., → Monegato, G.
Levrie, P.: Improving a Method for Computing Non-Dominant Solutions of Certain Second-Order Recurrence Relations of Poincaré-Type 501
Li, C., → Greenbaum, A., et al.
Li Shan, K., → Rodrigue, G., et al.
Li, X., Varga, R.S.: A Note on the SSOR and USSOR Iterative Methods Applied to p-Cyclic Matrices 109
Lopez de Silanes, M.C., Arcangéli, R.: Estimations de l'erreur d'approximation par splines d'interpolation et d'ajustement d'ordre (m, s). *Approximation Error Estimates for Interpolating and Smoothing (m, s)-Splines* 449
Lorenz, J., → Kloeden, P.E.
Louis, A.K., Rieder, A.: Incomplete Data Problems in X-Ray Computerized Tomography. II. Truncated Projections and Region-of-Interest Tomography 371
Lund, J., → McArthur, K.M., et al.

Mayer, G., → Frommer, A.
McArthur, K.M., Bowers, K.L., Lund, J.: The Sinc Method in Multiple Space Dimensions: Model Problems 789
Monegato, G., Lepora, P.: On the Numerical Resolution of the Generalized Airfoil Equation with Possio Kernel 775
Moock, H., → Motta, S., et al.
Motta, S., Russo, G., Moock, H., Wick, J.: Point Approximation of a Space-Homogeneous Transport Equation 763

Negron-Marrero, P.V., Carbonera, C.: The Numerical Computation of Compressed States of Nonlinearly Elastic Anisotropic Plates 93
Nessel, R.J., → Büttgenbach, B., et al.
Niethammer, W.: The SOR Method on Parallel Computers 247
Niijima, K.: Pointwise Error Estimates for a Streamline Diffusion Finite Element Scheme 707

Osborn, J.E., → Banerjee, U.

Pierce, D.J., Hadjidimos, A., Plemmons, R.J.: Optimality Relationships for p-Cyclic SOR 635
Plemmons, R.J., → Pierce, D.J., et al.

Ravachol, M., → Le Tallec, P.
Reichel, L.: The Ordering of Tridiagonal Matrices in the Cyclic Reduction Method for Poisson's Equation 215
Reimer, M.: Cardinal Hermite-Spline-Interpolation on the Equidistant Lattice 345
Rieder, A., → Louis, A.K.
Rodrigue, G., Li Shan, K., Yu-Hui, L.: Convergence and Comparison Analysis of Some Numerical Schwarz Methods 123
Russo, G., → Motta, S., et al.

Saranen, J.: Extrapolation Methods for Spline Collocation Solutions of Pseudodifferential Equations on Curves 385
Schneid, J., → Hundsdorfer, W.H.
Steidl, G., Tasche, M.: Index Transforms for Multidimensional DFT's and Convolutions 513
Stenberg, R.: Some New Families of Finite Elements for the Stokes Equations 827

Tasche, M., → Steidl, G.

Varga, R.S., → Li, X.
Vassilevski, P.S., → Axelsson, O.
Veselić, K., Hari, V.: A Note on a One-sided Jacobi Algorithm 627

Wegmann, R.: Conformal Mapping by the Method of Alternating Projections 291
Welfert, B.D., → Bank, R.E., et al.
Wick, J., → Motta, S., et al.
Wickeren van, E., → Büttgenbach, B., et al.

Yserentant, H., → Bank, R.E., et al.
Yu-Hui, L., → Rodrigue, G., et al.

Zhang, S.: An Optimal Order Multigrid Method for Biharmonic, C^1 Finite Element Equations 613

Covered by Zentralblatt für Mathematik and Current Mathematical Publications